

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Art Unit 3621

Geoffrey B. Rhoads

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For: MUSIC METHODS AND SYSTEMS

VIA ELECTRONIC FILING

Examiner: C. Agwumezie

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**APPEAL BRIEF**

This Appeal Brief is in furtherance of the Notice of Appeal filed July 15, 2008. Please charge the fee required under 37 CFR 41.20 or any deficiency thereof to deposit account 50-1071.

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**I REAL PARTY IN INTEREST**

The real party in interest is Digimarc Corporation, by an assignment from the inventor recorded at Reel 011194, Frames 0345-0346, on October 10, 2000.

**II RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

**III. STATUS OF CLAIMS**

Claims 1-14, 26-29 and 91-94 are finally rejected and appealed.

**IV. STATUS OF AMENDMENTS**

The amendments after final have been submitted.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

In the Office Action dated January 3, 2005, the Office rejected claims 1-14 and 26-29 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,862,260 (the '260 patent). This application claims priority to and incorporates by reference the '260 patent. The '260 patent is referenced at page 1, line 22 of this application and is incorporated by references at page 40, lines 8-10 of this application. The following summary of the claimed subject matter includes references to the '260 patent that establish the priority of the claims at least as early as May 16, 1996, the filing date of the '260 patent.

Claim 1 recites a method of distributing digital source material comprising:

passing encoded source material to a destination through at least one intervening steganographic decoder process (**'260 patent at col. 27, lines 34-41; '260 patent at col. 28, lines 45-49; and '260 patent col. 90, line 62 to col. 91, line 12),**

the encoded source material comprising plural-bit auxiliary data steganographically embedded in the digital source material (**'260 patent at col. 27, lines 50-52; and '260 patent col. 90, line 62 to col. 91, line 12),**

the digital source material including visual or audio signals that are perceptible when output from a device, and the visual or audio signals including imperceptible modifications to

perceptible parts of the visual or audio signals to embed the plural-bit auxiliary data in the perceptible parts in a manner that is imperceptible to a user, the imperceptible modifications adaptively changing values of the perceptible parts of the visual or audio signals by a varying amount that depends on the values of the perceptible parts;

(See, for example, '260 patent at col. 3, lines 60-67, which discusses the level of the amplitude of the embedded signal in video or audio that keeps the embedded signal imperceptible to the viewer or listener. See also '260 patent col. 7, lines 6-17, which provide an embodiment for modifying samples (e.g., pixels) of the content signal by adaptively changing values of pixels by varying amounts that depend on the values of the pixels. See also, '260 patent at col. 15, line 46 to col. 16, line 67, which describes an embodiment for modifying samples of audio or video adaptively (computes a real time scale factor of the embedded signal as a function of the input audio or video data samples). Finally, see '260 patent at col. 22, lines 53-63, regarding the level of the embedded identification signal is selected so that the embedded identification signal is imperceptible.)

within said intervening steganographic decoder process, detecting encoded source material transmitted thereby ('260 patent at col. 27, lines 34-41; '260 patent at col. 28, lines 45-49); and

crediting a payment in response to said detection of the encoded source material, in accordance with the plural-bit auxiliary data steganographically conveyed by the encoded source material ('260 patent at col. 27, lines 34-41; '260 patent at col. 28, lines 45-49; and '260 patent col. 90, line 62 to col. 91, line 12).

Claim 2 recites the method of claim 1 which includes decoding plural-bit auxiliary data only from source material that has first been tested to indicate the likely presence of such auxiliary data therein ('260 patent col. 26, lines 15-25).

Claim 3 recites the method of claim 2 which includes testing source material by reference to an encoding attribute that is supplemental to said encoded plural-bit auxiliary data ('260 patent col. 16, lines 50-55; and '260 patent col. 74, lines 51-63).

Claim 4 recites the method of claim 3 in which the attribute is the presence of a characteristic signature signal conveyed by said source material (**'260 patent col. 16, lines 50-55; and '260 patent col. 74, lines 51-63**).

Claim 5 recites the method of claim 4 in which the signature signal is a repetitive noise burst signal (**'260 patent fig. 9A, col. 27, line 46; col. 28, lines 24-40 and lines 50-53; col. 31, lines 45-48**).

Claim 6 recites the method of claim 1 in which the passing includes distributing through a network of interconnected computers (**'260 patent col. 71, lines 49-59**).

Claim 7 recites the method of claim 1 reporting the detection to a location remote from detection; and crediting royalties based on detection (**'260 patent col. 71, lines 49-59, and col. 90, line 62 to col. 91, line 12**).

Claim 8 recites a method comprising:

presenting audio source material to a consumer (**'260 patent at col. 27, lines 31-34, col. 62, lines 39-46, col. 63, lines 6-22**), the material being encoded steganographically to convey plural-bit auxiliary data (**'260 patent at col. 27, lines 53-65, col. 62, lines 43-46**), the audio source material including an audio signal that is audible when output from a device, the audio signal including imperceptible modifications to embed the plural-bit auxiliary data that are imperceptible to the consumer, the imperceptible modifications changing values of audible parts of the audio signal (see **'260 patent at col. 22, lines 53-63, and also see comments for similar elements of claim 1**);

decoding the audio source material that is presented to the consumer to decode the auxiliary data therefrom (**'260 patent at col. 27, lines 34-44**); and

using the plural-bit auxiliary data to retrieve information about the source material from a remote location (**'260 patent at col. 27, lines 50-52, col. 28, lines 47-49, col. 63, lines 6-22**).

Claim 9 recites the method of claim 8 including:

storing data indicating the audio source material(s) presented to the consumer (**'260 patent col. 27, lines 36-53**);

generating a report based on the stored data, indicating the audio source material(s) presented to the consumer (**'260 patent at col. 27, lines 42-44**).

Claim 10 recites the method of claim 8 which includes detecting the presented audio source material with a microphone, and decoding the auxiliary data from the audio signal within a microphone output signal (**'260 patent at col. 27, lines 42-43**).

Claim 11 recites a method comprising:

receiving a digital object steganographically encoded with plural-bit auxiliary data (**'260 patent at col. 27, lines 31-34, col. 62, lines 39-46, col. 63, lines 6-22**), the digital object including perceptible visual or audio signals with imperceptible modifications that have been made to encode the plural-bit auxiliary data in the visual or audio signals of the object, the imperceptible modifications adaptively changing values of perceptible parts of the visual or audio signals by a varying amount that depends on the values of the perceptible parts (**see '260 patent at col. 22, lines 53-63, and also see comments for similar elements of claim 1**);

decoding the plural-bit auxiliary data from the object (**'260 patent at col. 28, lines 46-49**);

consulting a registry to determine a transaction associated with the object, by reference to said decoded plural-bit auxiliary data (**'260 patent at col. 26, line 47, col. 52, line 67, and col. 90, line 62 to col. 91, line 12**); and

making a payment in accordance with the transaction (**'260 patent col. 91, line 11; col. 27, lines 38-41, col. 26, lines 57-62 (cited by Office in the 1/05 anticipation rejection by the '260 patent)**)).

Claim 12 recites the method of claim 11 that includes making said payment through the registry (**'260 patent at col. 26, lines 57-62 (cited by Office in the 1/05 anticipation rejection by the '260 patent)**)).

Claim 13 recites the method of claim 11 in which the object is a work of authorship, and the encoding adds a generally imperceptible level of noise to the object as it is perceived by a consumer thereof (**see commentary above for setting level of embedded identification signal so that it is at an imperceptible level**).

Claim 14 recites the method of claim 11 in which the registry comprises a database accessible through the internet (**'260 patent at col. 91, lines 1-10**).

Claim 26 recites a method of altering a music signal to steganographically insert plural bits of watermark data therein, characterized by steganographically inserting at least a first group of said bits for benefit of an end-user of the music signal by imperceptibly altering audible attributes of the music signal (**'260 patent at col. 32, lines 5-34, and col. 52, line 63 to col. 53, line 11; see, for example, "private code" for user at col. 32, line 30, which is in addition to the copyright flag and identification information described at col. 27, lines 45-52**), inserting a second group of bits different than the first for benefit of an artist whose music is encoded by said music data (**'260 patent col. 3, lines 56-59, col. 27, lines 45-52, col. 53, lines 3-6, and col. 94, lines 28-47; see, for example, the "copyright flag" at col. 27, line 49 and "names of owners" and "ownership identification" at col. 53, lines 1-5**), inserting a third group of bits different than the first two for benefit of a distributor of the music data (**'260 patent at col. 3, lines 58-59 (index exact sale and distribution information), col. 27, lines 49-52, and col. 52, line 63 to col. 53, line 11 (pricing information, billing information and the like)**), and storing in a registry accessible to the end user an association between information about the music data and at least a portion of the plural bits (**'260 patent at col. 52, line 67, and col. 90, line 66 to col. 91, line 4, which is applicable to audio at col. 95, lines 33-36**).

Claim 27 recites the method of claim 26 including storing in the registry an association between the first group of bits and an internet address of a web site accessible by end-users of the music signal, the registry providing the web site address in response to receiving at least the first group of bits (**'260 patent Fig. 27 and col. 63, lines 16-17, in which "indices" refers to an index to a registry; see also, '260 patent at col. 91, lines 2-9).**

Claim 28 recites the method of claim 26 in which the second group of bits includes bits representing a unique identifier for the music signal, permitting machine identification of the signal and royalty credit to the artist (**'260 patent col. 3, lines 56-59 (identify the material...and to index exact sale and distribution information), col. 52, line 63 to col. 53, line 11 (pricing information, billing information and the like).**

Claim 29 recites the method of claim 26 in which the third group of bits represents usage restrictions to which audio appliances are responsive, thereby driving distribution of additional copies of the music signal (**'260 patent at col. 27, lines 36-40).**

Claim 91 recites the method of claim 1 wherein the payment is credited for entertainment content provided to the user in response to processing at least a portion of the plural bit auxiliary data (**'260 patent at col. 27, lines 38-39 ("incrementing program specific billing meters"), col. 90, line 62 to col. 91, line 12).**

Claim 92 recites the method of claim 91 wherein the entertainment content is different from the encoded source material and is provided from a location remote from the steganographic decoder (**'260 patent Fig. 27 and col. 63, lines 6-22).**

Claim 93 recites the method of claim 8 wherein at least a portion of the plural bits are used to obtain an address of a web site related to the audio source material, and at least a portion of the plural bits are used to identify the audio source material (**'260 patent Fig. 27 and col. 63, lines 6-22; col. 92, lines 21-24 ("item field), and col. 94, lines 7-8 ("IP address").**



Claim 94 recites the method of claim 11 wherein the transaction comprises providing content related to the object to a user, and the payment comprises payment associated with providing the content related to the object to the user (**'260 patent at col. 91, line 11; col. 27, lines 38-41, col. 26, lines 57-62).**

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

- Claims 1, 8 and 11 are rejected as failing to comply with the written description requirement.
- Claims 1, 8, and 11 are rejected as being indefinite.
- Claims 1-4, 6-9, 11-14, and 91-94 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,240,185 to Van Wie et al.
- Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wie in view of U.S. Patent No. 5,473,631 to Moses ("Moses").
- Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wie in view of U.S. Patent No. 5,249,166 to Hamilton et al. ("Hamilton").
- Claims 26-29 are rejected under 35 U.S.C. Section 102(e) as being anticipated by U.S. Patent No. 5,444,779 to Daniele ("Daniele").
- Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniele in view of U.S. Patent No. 5,249,166 to Hamilton et al. ("Hamilton").

## **VII. ARGUMENT**

### **Claims 1, 8 and 11 comply with the written description requirement.**

The Office contends that the specification contains no support for: "the imperceptible modifications adaptively changing values of the perceptible parts of the visual or audio signals by a varying amount that depends on the values of the perceptible parts."

The specification clearly provides written description support for this claim language. For example, the specification at page 8, lines 8-14, describes how the steganographic encoding is perceptually adapted to the content signal.

Further, the specification incorporated by reference the teachings of inventor Rhoads'

work in his priority patents, including U.S. Patent No. 5,862,260 (the '260 patent) and 5,636,292 (the '292 patent), which provide further support for the claims in this application. The '260 patent is referenced at page 1, line 22 in the background and summary of the application, and the '292 patent is referenced at page 9, line 13. Both the '260 patent and the '292 patent are incorporated by references at page 40, lines 8-10 of the application.

The Office previously rejected claims 1-14 and 26-29 in this application as being anticipated by the '260 patent. See Office Action dated January 3, 2005. The Office has taken the position that at least those claims, as previously submitted, are supported by the '260 patent. As confirmed in response to the 1/3/05 Action, the application is entitled to priority at least to the '260 patent, filed May 16, 1996. The '260 patent includes extensive teaching on making imperceptible modifications by adaptively changing values of the perceptible parts of visual and audio signals as claimed. See, for example, col. 3, lines 60-67, which discusses the level of the amplitude of the embedded signal in video or audio that keeps the embedded signal imperceptible to the viewer or listener. See also col. 7, lines 6-17, which provide an embodiment for modifying samples (e.g., pixels) of the content signal by adaptively changing values of pixels by varying amounts that depend on the values of the pixels. See also, col. 15, line 46 to col. 16, line 67, which describes an embodiment for modifying samples of audio or video adaptively (computes a real time scale factor of the embedded signal as a function of the input audio or video data samples).

**Claims 1, 8, and 11 are definite to one of ordinary skill in the art**

The Office contends that it would be unclear to one of ordinary skill in the art to understand what is meant by "the imperceptible modifications adaptively changing values of the perceptible parts of the visual or audio signals by a varying amount that depends on the values of the perceptible parts."

When considered in light of the specification, one of ordinary skill in the art would clearly understand the cited claim language. As noted above, the specification (including the '260 patent incorporated by reference) clearly provides support for these elements. See, for example, col. 3, lines 60-67 of the '260 priority patent incorporated by reference into the specification. This passage discusses the level of the amplitude of the embedded signal in video

or audio that keeps the embedded signal imperceptible to the viewer or listener. See also col. 7, lines 6-17, which provide an embodiment for modifying samples (e.g., pixels) of the content signal by adaptively changing values of pixels by varying amounts that depend on the values of the pixels. See also, col. 15, line 46 to col. 16, line 67, which describes an embodiment for modifying samples of audio or video adaptively (computes a real time scale factor of the embedded signal as a function of the input audio or video data samples). Therefore, one of skill in the art would understand the claim language within the context of the explicit and detailed teachings of the specification.

**Claims 1-4, 6-9, 11-14, and 91-94 are not obvious in view of Van Wie**

Van Wie has a priority filing date of August 1996, whereas the claims have priority support at least as early as May 1996, as result of the priority to the '260 patent and the claim support information provided above. Therefore, Van Wie is not prior art to these claims.

**Claim 5 is patentable over the cited combination of Van Wie and Moses**

Van Wie is not prior art to claim 5.

**Claim 10 is patentable over the cited combination of Van Wie and Hamilton**

Van Wie is not prior art to claim 10.

**Claims 26-29 are patentable over Daniele and Van Wie**

Claims 26-29 are rejected under 35 U.S.C. Section 102(e) as being anticipated by U.S. Patent No. 5,444,779 to Daniele ("Daniele"). This rejection identifies Daniele in paragraphs 29 and 31, but applies Van Wie in paragraph 30. Van Wie is not prior art.

Claim 26 specifically recites: "method of altering a music signal to steganographically insert plural bits of watermark data therein, characterized by steganographically inserting..." in combination with additional elements. Daniele teaches a glyph, which is a visible marking placed on documents. While these documents might include prose, poetry or music (i.e. sheet music) on printed documents, it is not technically possible to insert such a glyph mark into a music signal. Daniele provides no relevant teachings regarding altering music signals to insert bits of data therein.

**Claims 27 and 29 are patentable over the cited combination of Daniele and Hamilton**

As described above, Daniele is not relevant to music signals because its teachings about

putting glyphs in printed material are clearly not applicable to music signals. Daniele is not relevant to these claims, and Hamilton does not disclose the elements of the claims missing from Daniele.

**VIII. CONCLUSION**

For at least the foregoing reasons, the rejections should be reversed and the application allowed for issuance.

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CUSTOMER NUMBER 23735

Phone: 503-469-4800  
FAX 503-469-4777

Respectfully submitted,

DIGIMARC CORPORATION

By /Joel R. Meyer/  
Joel R. Meyer  
Registration No. 37,677

CLAIMS APPENDIX  
Appealed Claims

1. A method of distributing digital source material comprising:  
passing encoded source material to a destination through at least one intervening steganographic decoder process, the encoded source material comprising plural-bit auxiliary data steganographically embedded in the digital source material, the digital source material including visual or audio signals that are perceptible when output from a device, and the visual or audio signals including imperceptible modifications to perceptible parts of the visual or audio signals to embed the plural-bit auxiliary data in the perceptible parts in a manner that is imperceptible to a user, the imperceptible modifications adaptively changing values of the perceptible parts of the visual or audio signals by a varying amount that depends on the values of the perceptible parts;  
within said intervening steganographic decoder process, detecting encoded source material transmitted thereby; and  
crediting a payment in response to said detection of the encoded source material, in accordance with the plural-bit auxiliary data steganographically conveyed by the encoded source material.
2. The method of claim 1 which includes decoding plural-bit auxiliary data only from source material that has first been tested to indicate the likely presence of such auxiliary data therein.
3. The method of claim 2 which includes testing source material by reference to an encoding attribute that is supplemental to said encoded plural-bit auxiliary data.
4. The method of claim 3 in which said attribute is the presence of a characteristic signature signal conveyed by said source material.
5. The method of claim 4 in which the signature signal is a repetitive noise burst signal.

6. The method of claim 1 in which said passing includes distributing through a network of interconnected computers.

7. The method of claim 1 reporting said detection to a location remote from detection; and  
crediting royalties based on detection.

8. A method comprising:  
presenting audio source material to a consumer, the material being encoded steganographically to convey plural-bit auxiliary data, the audio source material including an audio signal that is audible when output from a device, the audio signal including imperceptible modifications to embed the plural-bit auxiliary data that are imperceptible to the consumer, the imperceptible modifications changing values of audible parts of the audio signal;  
decoding the audio source material that is presented to the consumer to decode the auxiliary data therefrom; and  
using the plural-bit auxiliary data to retrieve information about the source material from a remote location.

9. The method of claim 8 that includes:  
storing data indicating the audio source material(s) presented to the consumer;  
generating a report based on the stored data, indicating the audio source material(s) presented to the consumer.

10. The method of claim 8 which includes detecting the presented audio source material with a microphone, and decoding the auxiliary data from the audio signal within a microphone output signal.

11. A method comprising:  
receiving a digital object steganographically encoded with plural-bit auxiliary data, the digital object including perceptible visual or audio signals with imperceptible modifications that have been made to encode the plural-bit auxiliary data in the visual or audio signals of the object, the imperceptible modifications adaptively changing values of perceptible parts of the visual or audio signals by a varying amount that depends on the values of the perceptible parts;  
decoding the plural-bit auxiliary data from the object;  
consulting a registry to determine a transaction associated with the object, by reference to said decoded plural-bit auxiliary data; and  
making a payment in accordance with the transaction.
12. The method of claim 11 that includes making said payment through the registry.
13. The method of claim 11 in which the object is a work of authorship, and the encoding adds a generally imperceptible level of noise to the object as it is perceived by a consumer thereof.
14. The method of claim 11 in which the registry comprises a database accessible through the internet.
- 15-25 Cancelled
26. A method of altering a music signal to steganographically insert plural bits of watermark data therein, characterized by steganographically inserting at least a first group of said bits for benefit of an end-user of the music signal by imperceptibly altering audible attributes of the music signal, inserting a second group of bits different than the first for benefit of an artist whose music is encoded by said music data, inserting a third group of bits different than the first two for benefit of a distributor of the music data, and storing in a registry accessible to the end

user an association between information about the music data and at least a portion of the plural bits.

27. The method of claim 26 including storing in the registry an association between the first group of bits and an internet address of a web site accessible by end-users of the music signal, the registry providing the web site address in response to receiving at least the first group of bits.

28. The method of claim 26 in which the second group of bits includes bits representing a unique identifier for the music signal, permitting machine identification of the signal and royalty credit to the artist.

29. The method of claim 26 in which the third group of bits represents usage restrictions to which audio appliances are responsive, thereby driving distribution of additional copies of the music signal.

91. The method of claim 1 wherein the payment is credited for entertainment content provided to the user in response to processing at least a portion of the plural bit auxiliary data.

92. The method of claim 91 wherein the entertainment content is different from the encoded source material and is provided from a location remote from the steganographic decoder.

93. The method of claim 8 wherein at least a portion of the plural bits are used to obtain an address of a web site related to the audio source material, and at least a portion of the plural bits are used to identify the audio source material.



94. The method of claim 11 wherein the transaction comprises providing content related to the object to a user, and the payment comprises payment associated with providing the content related to the object to the user.

EVIDENCE APPENDIX

There is no evidence appendix under 37 C.F.R. Section 41.37(c)(ix).

RELATED PROCEEDINGS APPENDIX

There are no related proceedings under 37 C.F.R. Section 41.37(c)(x).